DIGEST

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Crisis in the Gulf (page 11)

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AFRP 160-1

Message from the Surgeon General 3

Physician Assistants are Back in School 4
Maj. Ernest W. Edmonds, BSC
Maj. Gary W. Moussau, BSC
Maj. Coy L. Barfield, BSC

Medical Service Profile: 6
Lt. Col. David H. Gwinn
Dianne D. Reeves

Doing More with Less 7
Lt. Col. Lynn M. Jones, MSC

Managed Care: A Success Story at Eglin AFB 9
Capt. Donna D. Keltz, MSC

Air Force Medics Answer the Call 11

View From the Top: 14
Brig. Gen. Barbara A. Goodwin

Here's to Your Health! 17
Lt. Col. Barbara M. Hair, NC

Tick Identification: Preventing Disease 21
Capt. T. L. Carpenter, BSC

Annual Author Index: Volume 41, 1990 23

Annual Subject Index: Volume 41, 1990 23

Front cover: Air Force medics transport a recent aerovac patient to a mobile aeromedical staging facility during Operation Desert Shield.

Message from the Surgeon General

Medical Readiness is Number One

Abraham Lincoln wrote to Governor Andrew G. Curtin of Pennsylvania in April 1861, "I think the necessity of being ready increases. Look to it." We in the Air Force Medical Service know that the need for readiness has never been greater than it is today, and we "look to it" as our number one priority. Our mission of operational support requires us to be available and prepared, mentally and physically, for immediate action.

Although the cold war as we know it may be winding down, we still have many other responsibilities around the world. Regional conflicts, such as the crisis in the Persian Gulf, can threaten the security and economic interests of the United States and our allies. The Pacific Rim, South and Southwest Asia, Africa and Latin America are all areas of potential conflict. To perform successfully in a changing world, we must be ready to meet our mission any time and any place.

We do this through medical readiness training. The outstanding performance of Air Force medics during operations Just Cause and Desert Shield/Desert Storm proves that medical readiness training pays off! Air Force medical personnel deployed more rapidly for Desert Shield than in any other major crisis—five times faster than during the Vietnam Conflict. We have never been better trained or equipped to fulfill our wartime mission.

Medical readiness involves more than just training our personnel to treat patients on the battlefield. Many don't realize that readiness is integrally related to our peacetime mission. By caring for our patients in peacetime, we practice our wartime skills on a daily basis. Peacetime care also means keeping our active duty patients healthy and fit to "fly, fight and win" in any contingency that might arise. And when they deploy, they have peace of mind in knowing that their families at home are well-cared-for—with this assurance, they can concentrate on the vital mission at hand.

Medical readiness also depends on attitude: commitment, perseverance, and teamwork. We are a team on which every member plays a crucial role, whether at home or in the desert, on a ward or in the field. The Guard and Reserve are major players on our team. Many have deployed alongside their active duty counterparts; others have backfilled positions in our hospitals and clinics, providing continuity of care to our patients left behind. The bottom line is, we can't win the war without them.

I am tremendously proud of all the men and women in the Air Force Medical Service and of your dedication to our mission. You are simply the best at what you do. I am confident that you will meet the difficult days ahead with the talent, professionalism, and dedication that is your hallmark.

Monte B. Miller

MONTE B. MILLER
Lieutenant General, USAF, MC
Surgeon General

Physician Assistants are Back in School

Maj. Ernest W. Edmonds, BSC
Maj. Gary W. Mousseau, BSC
Maj. Coy L. Barfield, BSC

Graduation on Oct. 12, 1990, marked the end of six years in standby status for the 3790th Medical Service Training Wing, Sheppard AFB, Texas. It also marked the beginning of a new phase of training for graduating class 891016. This first class of the reactivated physician assistant (PA) program graduated from Phase I training to enter Phase II in only three weeks. The PA program, consisting of intensive two-year training, prepares students to become direct health care providers at Air Force hospitals and clinics throughout the world.

In his remarks to the graduates, Maj. Gen. (Dr.) James G. Sanders, deputy surgeon general, noted that medical practice has undergone many changes over the years, and that the Air Force has consistently taken the lead in many areas, including the training of physician assistants. He added, "What has remained the same is the quality and integrity of the Air Force medical community." General Sanders challenged the students by saying, "Your service demands more than most because you must live up to two professional standards that both demand excellence: medicine and military."

Valedictorian SSgt. Robert D. Bell spoke to the class of the "awesome responsibilities ahead" and reminded his contemporaries that for many patients, physician assistants will be the first point of contact with the Air Force health care delivery system. Sergeant Bell encouraged the graduates to use responsibly what they have learned.

SSgt. Christopher Thaman received the Alonzo A. Towner Award during the ceremony. Named for the surgeon general credited with establishing the Air Force physician assistant program in 1971, the Towner Award is presented to the student who best exemplifies the qualities of the professional physician assistant. The award was presented to Sergeant Thaman by Maj. Coy Barfield, associate chief of the Biomedical Sciences Corps for physician assistants.

After the ceremony and celebration, most students headed for their next assignment at one of five medical treatment facilities. With only three weeks to make a PCS move, most had their cars packed and were ready to press forward to new challenges.

Physician Assistant Training

The Air Force began training physician assistants in 1971, and classes ran continuously for approximately 13 years. In 1984, however, staffing and budgetary considerations caused physician assistant training to be temporarily disbanded. By 1989, manpower shortages throughout the Medical Service necessitated reactivation of the program, and this year's graduating class began their studies in the fall of 1989.

Over the years, more than 1,000 students have completed the Air Force Physician Assistant Training Program. Of the graduates, more than 700 have been Air Force members, while the remainder have come from the ranks of the Army, Navy, National Guard and civilians affiliated with the University of Nebraska.

The two-year Air Force Physician Assistant Training Program is accredited by the American Medical Association. The first year (Phase I), taught at Sheppard, is primarily didactic with courses in basic sciences, clinical medicine and physical assessment. This first year is composed of 28 specific blocks of instruction and taught in three semesters of four months each. More than 65 written examinations and countless performance tests assess learning and comprehension, ensure mastery and prepare students for their second year of training.

The second year (Phase II) is conducted at one of several selected Air Force hospitals throughout the United States. A medical clerkship of 11 rotations in medical and surgical specialties prepares each student to assume greater patient care responsibilities. The specialties include: internal medicine, pediatrics, dermatology, psychiatry, otorhinolaryngology, ophthalmology, surgery, orthopedics, obstetrics/gynecology, primary care and emergency medicine.

Upon completion of Phase II, students receive their baccalaureate degrees from the University of Nebraska and are commissioned second lieutenants in the Biomedical Sciences Corps. They also become eligible to take the national certifying examination administered by the National Commission on Certification of Physician Assistants.

The Role of the Air Force Physician Assistant

A few short years ago, patients often asked, "What is a physician assistant?" Today, patients recognize that PAs are highly skilled members of the health care team who provide a broad range of medical services in a variety of settings. Under the direct supervision of licensed physicians, they take patient histories, perform physical examinations, order appropriate tests, prescribe

medications and make diagnoses.

Studies show that Air Force PAs are qualified to care for approximately 90 percent of the patients who seek care in USAF medical treatment facilities. By providing such a broad range of diagnostic and therapeutic services, PAs enable their physician preceptors to spend more time with complex patient problems.

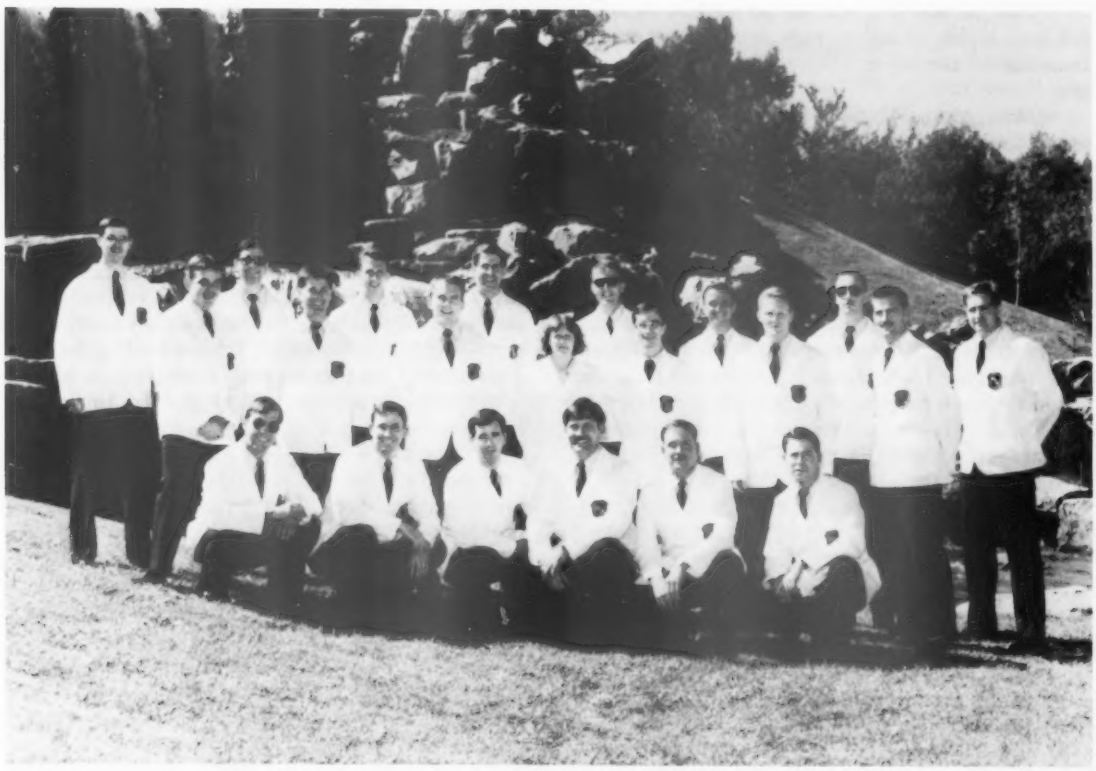
Air Force physician assistants usually work in the primary care setting, such as family practice and general medicine clinics. In addition, the Air Force provides specialty training to graduate PAs in general surgery, orthopedics, otorhinolaryngology, cardiovascular perfusion and emergency medicine. Regardless of their duty location or specialty, however, PAs perform only those tasks and procedures delegated to them by their supervising physicians.

Conclusion

Over the years, the Air Force has taken justifiable pride in the quality of men and women who have joined the ranks of USAF physician assistants. This year's class is no exception. They have met the challenge of an extremely difficult and highly specialized didactic program, showing that they are ready for the new challenges of Phase II training. This is just the beginning of their careers as vital and respected members of the Air Force health care team.

Note: Individuals interested in pursuing physician assistant training should refer to AFR 50-5, USAF Formal Schools, Course Number J30QR9281-000 for program description, prerequisites and application procedures.

Maj. Ernest W. Edmonds is program director for the physician assistant program of the 3790th Medical Service Training Wing, Sheppard AFB, Texas. Maj. Gary W. Mousseau, instructor supervisor for the physician assistant program and Maj. Coy L. Barfield, Biomedical Sciences Corps associate chief for physician assistants are also at the 3790th Medical Service Training Wing.



Members of the Air Force Physician Assistant Training Program graduate in the first class since 1984: (Front row, left to right) TSgt. Andrew Oja, TSgt. Stanley Ragsdale, MSgt. Leslie Beben, TSgt. Ricky Stariwat, TSgt. Sammual Gunnels, TSgt. Thomas Wilkins. (Middle row, left to right) SSgt. Paul Desillier, SSgt. Kenneth Nystrom, SSgt. Robert Bell, TSgt. Donna Hanson, SSgt. William White, SSgt. Michael Johnson, TSgt. David Tomey. (Top row, left to right) TSgt. Philip Gosvener, TSgt. Lewis Weger, SSgt. Daniel Komro, MSgt. Marc Deschaine, SSgt. Christopher Thaman, TSgt. Harold Ewing, SSgt. Michael Millis, SSgt. Thomas Sandin.

Lt. Col. David H. Gwinn

Dianne D. Reeves

(Editor's note: This article is reprinted with permission from Air Force Recruiter)

"I saw history take place, I visited 43 countries and every state but three," Air Force Lt. Col. David Gwinn said of his five-year tour at the White House.

Colonel Gwinn, a physician assistant, was assigned to the team that preceded President Ronald Reagan or Vice President George Bush to the locations they were visiting.

"Our job was to check out the medical facilities, and have a plan of action ready in case there was an assassination attempt or other medical emergency," he said.

Gwinn spoke with the president and vice president several times, but he only rode on Air Force One, once. "It was a short trip from Los Angeles to Palm Springs, Calif.," he said. "We went on horseback rides with them lots of times, but we were riding in the vehicles following the horses."

The White House job limited Colonel Gwinn's movements as well. "Here I was with a beeper on my side living two other men's lives for five years," he said. "On the other hand, there was all the travel to all those good countries. I saw places I would never have seen and history as it happened."

Colonel Gwinn is currently the senior physician assistant in the Family Practice Clinic at Bolling AFB in Washington, D.C.

His White House tour isn't the only time in his 33-year Air Force career that he's had a brush with history. Before he was selected in the first group of Air Force physician assistants at Sheppard AFB, Texas, in 1972, he was a medic.

While he was stationed at Columbus AFB, Miss., from 1961 to 1967, he became a member of the medic launchpad rescue team set up to rescue injured astronauts. "There were seven of us," he said. "Four were Air Force, two were Army and one Navy—we took turns going to the launches. I was due to fly to Cape Canaveral on Jan. 28, 1967, the day after the three astronauts—Grissom, White and Chaffee—burned to death in a launchpad test of the Apollo capsule."

Gwinn's path to an Air Force career began in Peterstown, W.V., where he grew up. He was a good enough baseball player to try out for the Brooklyn Dodgers when he graduated from high school. He didn't make it, but he was accepted in the pharmaceutical school at the University of West Virginia.

"I was working in my dad's grocery store, but Peterstown is an old coal mining area," he said. "Times were hard. My dad couldn't afford to send me to school and he really couldn't afford to pay me a salary at the store. I told him, 'no sweat, I'd just work at the local radio station.' But then the radio station laid me off too.

"I talked to a recruiter and joined the Air Force as an enlisted member. I got in the medical field by luck. When I got to Lackland AFB, Texas, for basic training, I was tested and they said I could be one of three things—a photographer, security policeman or a medic. I raised my hands, my arms and my eyes and fortunately got medic."

As a medic he served at Maxwell AFB, Ala.; Lajes Field in the Azores; Vietnam; and Misawa AB, Japan.

From Misawa he went to Physician Assistant School. "I wouldn't trade the experience of being a physician assistant for anything," Gwinn said. "I love taking care of people. I like mingling with people and I like to see them smiling and feeling good."

He says he has been treated as a professional by physicians and patients. "I think Air Force medicine is great," he said, "and after 33 years, I just may decide to make a career of it."

Dianne D. Reeves is a writer at Headquarters Air Force Recruiting Service, Randolph AFB, Texas.

Doing More with Less

Alternate Funding for Managed Care

Lt. Col. Lynn M. Jones, MSC

"Do more with less." "Take it out of hide." We've all heard these sentiments in the past and done our best to respond. With constrained military budgets and growing patient populations, we'll continue to be challenged to "work smarter, not harder" in the future.

Two Sources of Funds

Is there any way to expand patient services in an austere financial environment? You bet! Two programs—the Alternate Use of CHAMPUS Funds Program and the Air Force Management Efficiency Program—were created to increase the capabilities of USAF medical facilities and provide in-house medical services to CHAMPUS-eligible patients. With annual budgets of $83 million, these programs provide funds to support a variety of locally developed health care delivery initiatives.

For an investment of Alternate Use or Management Efficiency monies, local initiatives to increase patient services are expected to become profitable within one year of treating the first patient. Profitability in this context means avoiding CHAMPUS costs or increasing the efficiency of medical operations. If a program saves government dollars, it's considered to be profitable.

What kinds of ideas can be incorporated into the Alternate Use or Management Efficiency framework? Figures 1 and 2 illustrate the kinds of advancements made by Air Force hospitals and clinics during fiscal year 1990. Subject to some limits, almost anything qualifies as long as it will save CHAMPUS dollars or measurably improve the efficiency of Air Force health care delivery. Personnel can be hired, and services can be contracted. Facilities can be modified as long as the cost remains below $200,000. Equipment can be purchased, and additional space can be leased. In short, there's tremendous opportunity for creativity.

Partnership with Headquarters

The good news continues! The surgeon general has dedicated a staff to assist commanders and executive management teams with developing their ideas early in the planning process. At Air Force expense, the officers listed in Figure 3 will travel to a medical treatment facility to assist in project development. If necessary, consultants can also be brought in.

After a proposal is submitted, the "project support team" will monitor it through the various approval processes. Their mission is to ensure that viable projects are submitted and expeditiously approved. A partnership

FY 1990

ALTERNATE USE OF CHAMPUS FUNDS

Specialty	*Location*
Anthroscopy	Grand Forks
Cardiac Surgery	Wright-Patterson
ENT	Davis-Monthan, Minot, Nellis
Gastroenterology	Davis-Monthan
OBGYN	Tinker
OBGYN Support Staff	Elmendorf
Operating Room Staff	Eglin, Nellis, Shaw, Wright-Patterson
Orthopedics	Davis-Monthan
Outpatient Support	Kirtland
Psychiatry	Offutt
Urology	Minot

Figure 1

FY 1990
AIR FORCE MANAGEMENT EFFICIENCY PROGRAM

Specialty	*Location*
Adolescent/Child Psychiatry	Wilford Hall
Bone Marrow Transplant	Brooke Army Medical Center
Managed Care	Wright-Patterson
Neonatal Transportation	Keesler
OBGYN/Pediatrics	Little Rock
Operating Room Staff	Barksdale, Ellsworth, Scott
Outpatient Support Staff	Robins, Wilford Hall
Radiology	Mountain Home
Reference Laboratory	USAFSAM
VA Purchased Care	Kirtland

Figure 2

between Air Staff project officers and local executive managers is the natural outcome of this process.

Some Drawbacks

Are there any negative aspects of these programs? Yes, but they are minimal compared to the success of the programs. For example, quarterly progress reports must be prepared and submitted. Audit trails and cost accounting systems are necessary; the Alternate Use Program is subject to audit by the DOD Inspector General. However, overhead expenses necessary to accomplish these tasks can be built into the cost of conducting a local program.

A Success Story

The following article describes an outstanding managed care program at one Air Force hospital. It's a success story of how local managers saw a way to expand services and save taxpayer money at the same time. For information on similar successes, contact the commander or administrator at any of the facilities listed in Figures 1 and 2. Or contact any member of the project support team listed in Figure 3.

"If only we had additional resources—people, money, and equipment—we could improve the way we deliver care." Well, here's your chance to make a difference!

Lt. Col. Lynn M. Jones is the deputy chief, health affairs and plans division, in the medical plans and resources directorate, Office of the Air Force Surgeon General, Bolling AFB, D.C.

HQ USAF/SGHA

PROJECT SUPPORT TEAM

Lt. Col. Lynn Jones

Capt. Dan Sherred	*Maj. Hugh Paterson*	*Capt. Gene Migliaccio*
AFLC	USAFE	PACAF
ATC	SAC	AFSC
AU	SPC	MAC
		TAC
		AFA

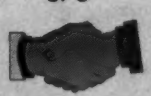


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Figure 3

Managed Care:
A Success Story at Eglin AFB

Capt. Donna D. Keltz, MSC

We've come a long way from the days when the prevailing wisdom was, "What's good for one Air Force hospital is good for another!" Today, most would agree that each military hospital and clinic has its own unique mission and faces special challenges in providing or arranging high-quality medical care for a growing patient population.

Despite their individual differences, however, today's Air Force medical facilities all face rising civilian health care costs and increasing patient use of the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) Program. Since CHAMPUS costs are now borne by each military service, patients can no longer be "disengaged" to civilian providers without regard to the cost of the care they receive. Managing military and CHAMPUS health care costs has become a universal responsibility of the Air Force Medical Service.

Several "managed care" programs, including the CHAMPUS Reform Initiative (CRI), Catchment Area Management (CAM), and the Southeast Managed Care Contract, are being tested in various areas of the country in an effort to control CHAMPUS costs. Although these cost control initiatives show promise, for now they are only available to a limited number of Air Force medical facilities.

Dr. Basil D. Fossom, urologist in the Eglin Partnership Program, consults with a patient.

In the meantime, however, Health Care Finder, Partnership, Air Force Management Efficiency, and Alternate Use of CHAMPUS Funds programs are available to everyone. Used separately or in combination, they can effectively reduce CHAMPUS expenditures. (NOTE: Alternate Use funds cannot be used in CRI and CAM areas, and the Management Efficiency program does not apply to CRI sites.) At the same time, they can greatly expand available health care services for our patient populations.

At Air Force Systems Command (AFSC) Regional Hospital Eglin, Eglin AFB, Fla., we took advantage of the Alternate Use of CHAMPUS Funds and Partnership programs to reduce our CHAMPUS costs by recapturing lost workload. In the process, we gained additional support staff and expanded the inpatient services offered to Eglin beneficiaries. We think we've done well, and our success was recently validated by a Department of Defense Inspector General (DOD/IG) audit.

Getting Started

In 1988, we decided to see whether the Alternate Use of CHAMPUS Funds program could be applied to our situation at Eglin. To get started, we looked at the record of our annual CHAMPUS expenses and discovered that three specialties, psychiatry ($6.0 million), obstetrics ($3.0 million) and surgery ($2.4 million) were at the top of our list. Because of facility limitations and a lack of skilled personnel in our local area, we quickly eliminated psychiatry and obstetrics from further consideration. However, surgery seemed to offer a promising return on a CHAMPUS investment.

Next, we looked at our surgical nonavailability statements, military staff shortages, local support capabilities in our area, and our beneficiary needs. Taken together, these factors suggested that expansion of our surgical support staff and an increase in the capacity of our surgical suites could be a cost-effective strategy to control the growth in our inpatient CHAMPUS costs. At the same time, we could offer expanded surgical services to our patients.

At the time, we had 11 Partnership agreements with a broad range of surgical specialists. Expansion of our operating room capability would enable our Partnership providers to increase the range of inpatient services pro-

Dr. Robin F. MacDougall, family practice physician partner, examines a patient in the Eglin Primary Care Clinic.

vided to CHAMPUS beneficiaries. In short, we felt that we could combine the Alternate Use of CHAMPUS Funds program with our existing Partnership program to create a cost-effective expansion of our services.

After considering several options, we determined that we could increase the availability of our operating room by 48 hours per week with the addition of one nurse anesthetist, two operating room nurses, one recovery room nurse, three general duty nurses, two surgical technicians, and two medical technicians. The additional staff and other associated expenses would require an investment of $249,000, but for that money, we felt that we could recapture 39 surgical admissions per month from CHAMPUS. On that basis, we believed we could reduce annual CHAMPUS expenditures by approximately $1.3 million.

We formalized our ideas and submitted them to higher headquarters for Air Force Systems Command and Air Staff review. Final Department of Defense approval was received, and we began operation in June 1989.

Early Results

During our initial four months of operation, a total of 282 surgical procedures were performed under our approved program, and we experienced a 35 percent decrease in the number of nonavailability statements issued. These factors translated to a recaptured benefit of $571,701 based on the diagnosis related group (DRG) rates paid by CHAMPUS to local hospitals for equivalent surgical procedures at the time. Since the costs associated with our surgical initiative were $144,074 for the same period, our net savings were $427,627 for the period June through September 1989. On that basis, our estimated savings of $1.3 million annually seemed reasonable.

Cost Accounting

Because Congress intended that Alternate Use Program monies only be used to provide care to CHAMPUS-eligible beneficiaries, a special cost accounting methodology had to be established. Mr. Gene Hart, our resource manager, devised a cost accounting system using Medical Expense Performance Reporting System (MEPRS) data. A step-down methodology was used to allocate the cost of supplies and services dedicated to CHAMPUS patients seen under our program.

We chose to integrate the additional staff hired under our Alternate Use program into our overall hospital staff. As a result, salary expenses also had to be prorated. At Eglin, our ratio was approximately 70 percent for CHAMPUS-eligible patients vs. 30 percent for other eligible patients.

At the same time we were separating cost information, we had to ensure we could compute our CHAMPUS workload from our MEPRS data. DRGs were therefore identified for each Partnership surgical case to compute the corresponding CHAMPUS DRG cost. Once all sources of our cost and workload information were merged, we could arrive at our true net savings.

DOD Inspector General Validation

In November 1989, the DOD Inspector General visited our facility to examine our program. Our cost accounting system allowed us to show the auditors precisely how we calculated our CHAMPUS savings. At the same time, we had a clear audit trail of the CHAMPUS funds used in support of our surgical initiative. The DOD/IG validated our net savings of $427,627 for our first four months of operation, and recommended that our Alternate Use of CHAMPUS Funds initiative be continued during Fiscal Year 1990.

The DOD/IG recommendation turned out to be well-placed. For Fiscal Year 1990, our net savings turned out to be approximately $1.2 million!

Final Thoughts

At Eglin, we set out to decrease CHAMPUS costs, recapture CHAMPUS workloads, and expand patient services. We decided that we could effectively combine the Alternate Use of CHAMPUS Funds and Partnership programs by augmenting our surgical staff and expanding our operating room capability. After more than a year of operation, we think we've accomplished our original goals.

The program has taken a great deal of work, required a lot of documentation, and subjected us to outside evaluation by DOD/IG. Nevertheless, we feel that our ability to provide cost-effective, high-quality health care services to our local patients has made the effort totally worthwhile.

At the time this article was written, Capt. Donna D. Keltz was the director, patient administration, at Air Force Systems Command Regional Hospital Eglin, Eglin AFB, Fla. She has recently been reassigned to the 7100th Combat Support Wing Medical Center Wiesbaden.

Crisis in the Gulf

Air Force Medics Answer the Call

(Editor's note: This article was sent to press just days before the cease-fire.)

The Air Force Medical Service now faces its biggest challenge since the Vietnam War. Since Iraqi armed forces stormed into Kuwait on Aug. 2, 1990, overrunning the country and posing a major threat to U.S. interests in the Middle East, our military has responded with operations Desert Shield and Desert Storm to defend the Arabian peninsula.

Top: The C-130 is the primary aircraft used for dedicated medical flights within the Persian Gulf. Bottom: First Lady Barbara Bush visits the troops.

Rapid Deployment

In support of the mission to keep American forces fit to fight, Air Force Medical Service personnel, equipment and supplies deployed almost immediately at the outset of Desert Shield. USAF medical assets have never before deployed as rapidly in a major crisis. For example, deployment to the Persian Gulf was five times faster than deployment during the Vietnam War.

The first squadron medical elements and air transportable clinics left on Aug. 8, 1990, just six days after Iraq's invasion of Kuwait. The first air transportable hospitals arrived in the theater by Aug. 13. By late October, most of the air transportable medical facilities were committed to the operation, and by November, the Persian Gulf deployment included hospitals from 10 CONUS air bases. The early, rapid and comprehensive deployment reflects our Medical Service's high level of preparedness.

Although important in support of Desert Shield, rapid deployment does create personnel turbulence. CONUS medical facilities sometimes lose a large portion of their staff to provide personnel for each deploying air transportable hospital. In September, the Medical Service received a share of the total USAF involuntary recall of reserve units and individual mobilization augmentees initiated by the President and DOD officials. As a result, the Reserve and National Guard now meet urgent backfilling needs in CONUS facilities, and they form a significant part of the Medical Service deployed to Europe and the Arabian Peninsula.

The Air Transportable Hospital

The Medical Service deployed effectively as well as rapidly. Rapid deployment alone did not enable them to face the challenges in the Middle East successfully. They needed proper equipment and adequate facilities. The air transportable hospital continues to prove extremely useful in this regard.

The newly expanded, 50-bed hospital is equipped with two surgical tables, a laboratory, an X-ray machine, blood storage equipment and a dental chair that doubles as an additional operating table. The air transportable hospital can function for 30 days without resupply. It functions well in extremely hot or cold climates because of a forced air ventilation system in the tents and prefabricated metal shelters. An Army research and development program holds promise for providing chemical protection for the air transportable hospitals.

Casualties can recuperate in the hospital for several days before return to duty or may be evacuated to a more definitive care facility, such as a 250-bed or 500-bed contingency hospital. The theater evacuation policy guides determination of the amount of time that patients remain in the air transportable hospital.

The hospital is designed for rapid mobility. Six C-130s can carry a 50-bed air transportable hospital. Once on site, the hospital staff and base support personnel can assemble the hospital and be fully operational within 24 hours. Each hospital supports 4,000 people, roughly a tactical fighter wing. It also supports the squadron medical elements and air transportable clinics that deploy with their tactical and strategic units. The air transportable hospitals are the backbone of the deployable medical treatment system.

The air transportable hospital ISO shelter houses X-ray and laboratory services and the operating room.

This 50-bed air transportable hospital was assembled and fully operati the deployable medical treatment system.

Contingency Care and Evacuation

In addition to these medical treatment facilities, the Air Force has access to several contingency hospitals collocated with aeromedical staging facilities and transportable blood transshipment centers. Several tactical fighter wing hospitals and prepositioned contingency hospitals await use in Germany and England. The "turnkey" contingency hospitals stand fully equipped, needing only professional staff to begin operations.

Contingency hospitals are staffed from CONUS medical treatment facilities such as Wilford Hall, Malcolm Grow and the Scott AFB Medical Center. The 21st and 23rd Air Force Medical Service Squadrons provide staff for the aeromedical staging units. From these facilities, casualties would be evacuated to CONUS military hospitals. If these facilities become overwhelmed, patients could be sent to Department of Veterans Affairs hospitals or civilian hospitals of the National Disaster Medical System.

The USAF aeromedical evacuation system is equipped to return casualties from the Middle East to Europe and from Europe to CONUS. The Air Force is prepared to use dedicated and retrograde C-141s for casualty evacuation and specially configured C-130s to provide dedicated medical flights within the Persian Gulf.

Desert Heat

Despite the high level of preparedness of American personnel, no training could prepare them for the searing summer heat of the Persian Gulf. To adjust to the heat,

perational within 24 hours. The ATH is the backbone of

new arrivals had to drink five or six gallons of water a day. Only after two weeks, when the shock of the new environment subsided, could personnel reduce their intake to three or four gallons.

Compounding the heat problem, the troops sometimes had to train and work in chemical protective clothing. The standard-issue protective ensemble, the MOPPs, trapped sweat, heat and evaporative moisture; the Air Force responded by quickly contracting for more comfortable chemical defense uniforms for air crews and ground crews. New items include one-piece uniforms that can be washed as many as 10 times with no loss in chemical protection and, for air crews, new protected integrated helmet/masks. Until sufficient quantities of this new equipment become available, Air Force personnel must continue careful preventive measures to keep heat casualties to a minimum.

Biological and Chemical Warfare

Deployed personnel may face another potential enemy in the Persian Gulf besides temperature—biological and chemical warfare. In preparation for a possible encounter, the Defense Department ordered more autoinjector kits of atropine and pralidoxime chloride. A new autoinjector containing 10 milligrams of parenteral diazepam, a convulsive antidote for nerve agents, was also procured. Because deployment was rapid, many units had to leave for the Persian Gulf without a full set of biological/chemical warfare antidotes, but U.S. Central Command remedied the problem from in-theater stocks. Vaccines against biological warfare agents are being provided.

The Frozen Blood Program

The operation in the Gulf is the first operational test of the DOD frozen blood program, which began in 1984. Liquid blood lasts only 35 days, but frozen blood lasts 10 years or more. Technicians prepare liquid blood for freezing by replacing the water in the red blood cells with glycerol, a syrupy liquid, and then removing the blood plasma surrounding the cells. The high-tech but labor intensive frozen blood deglycerolization procedure allows two blood bank technicians with four cell-washing machines to thaw, wash and deglycerolize 90 units of frozen red blood cells in a 12-hour shift. The frozen reserve units give donor centers the lead time they need to prime and fill the liquid pipeline to replenish the theater's liquid blood supply.

Technological advances of recent years make it possible to expedite units of frozen blood to special blood product depots in distant theaters. During Desert Shield/Storm, the Air Force is shipping frozen blood units from the Armed Services Whole Blood Processing Laboratory at McGuire AFB, N.J. The units travel through Europe to blood transshipment centers in the theater. Each transshipment center now in the Persian Gulf has a staff of six and can store 7,200 units of fresh blood.

Conclusion

As Medical Service personnel cope in a foreign environment 7,000 miles from our East Coast, they face new challenges every day. By applying their already superior skills and assimilating new lessons, they prove that the confidence of Surgeon General Monte B. Miller is not misplaced. Lt. Gen. Miller said, "I am confident that the Air Force Medical Service is ready to provide first rate medical care for operation Desert Storm." ✟

James S. Nanney, Ph.D., historian for the Office of the Air Force Surgeon General, Bolling AFB, D.C., contributed to this article.

This aircraft hangar doubles as a ward in a contingency hospital.

The *Digest* Interviews

Brig. Gen. Barbara A. Goodwin

On December 27, 1990, the *Digest* interviewed Brigadier General Barbara A. Goodwin, chief of the Air Force Nurse Corps. General Goodwin gives her views on the challenges, opportunities and goals of the Nurse Corps as it strives toward excellence in meeting the needs of a changing Air Force.

Digest: General Goodwin, what is today's greatest challenge for the Air Force Nurse Corps?

General Goodwin: I don't think there's any question that the major challenge is trying to maintain a corps with adequate numbers of well-qualified people to carry out our medical mission. That's the greatest challenge we have, and it's many-pronged. It involves education, recruiting and retention.

Digest: What is the status of recruiting in the Nurse Corps?

General Goodwin: Thus far we've been fairly fortunate. We achieved our recruiting goal last year. In fact, we exceeded it by a small number. It takes a tremendous effort on the part of recruiters to accomplish that.

Digest: Why is meeting the recruiting goal so difficult?

General Goodwin: There just aren't as many nurses available as there have been in the past. In terms of salary and benefits, we're not quite as competitive as we once were. Because of the shortages, civilian institutions are required to increase their ante and their starting salary, and we can't compete with that. You know, we don't recruit people for salary. We recruit them to the Air Force and all that it has to offer. Our recruiters do a superb job of marketing the Air Force as a great professional opportunity.

Digest: What are we doing to prepare for the nursing shortage you mentioned earlier?

General Goodwin: In the Air Force, the bulk of our efforts lies in retention. Resources are dwindling, and we may not be fully successful in recruiting over the next years. If we can retain those whom we have on board, we will be much further ahead. We have several initiatives working right now to enhance retention. One starting to be addressed informally by the three services is a retention bonus, but that is in its infancy stages. The services are also working on other types of special pay for nurses.

Also, we are making a little bit of progress with improving promotion opportunity. For instance, two years ago a grade review was done to determine the requirements for field-grade officers in the clinical sector. In this day of high technology, it is essential that we have experienced nurses in the clinical arena. We have not been able to accomplish that in the past because we could not justify authorizations for senior officers on our inpatient units. Through the review process, we have been successful in significantly increasing the requirements for majors and lieutenant colonels. This will enable Air Force nurses to remain clinically active throughout a career, and a large number of our nurses prefer to remain clinically involved. I believe this will be one of the major factors in retention for the Air Force Nurse Corps. In addition, the grade review will improve the promotion opportunity and bring it more in sync with the line.

Keeping people at an equitable salary will do one thing, but unless you provide them with an acceptable work environment, they are not going to stay. We have been able to initiate the first steps in automated nursing care management systems at one of our facilities. We spend a great deal of time documenting, and as we look at shortages and streamlining, it's essential that we automate where we can. The study is very small, but at least it's going to allow us to evaluate aspects of automation for future use. Right now we are gathering preliminary data and awaiting hardware to begin the study at David Grant Medical Center. The software is ready to go. Also significant is the implementation of the outcome-oriented documentation system, a nursing documentation system developed for automation. We are implementing it Air Force-wide now. It is vital that our Air Force people know we are concerned about retention and are working toward improving their work environment as well as their quality of life.

Digest: If we should have a real problem with a shortage, do you foresee the enlisted force filling in the need?

General Goodwin: They would not replace professional nurses; however, we cannot manage without our enlisted forces. We get well-qualified, highly trained individuals who can pick up many of the technical as-

pects of patient care. Right now we have two levels: the professional nurse and the technician. As a result of additional training at the associate degree in nursing level, we could change our staffing mix to a three-tier system: a professional nurse, a technical nurse and a technician. We have just selected 10 candidates for a test program that will begin this year. These 902s will attend an associate degree program in nursing at Louis & Clark in Lewistown, Idaho. At the completion of their program, they will be assigned to one of two Air Force facilities as technical nurses. They will remain in the enlisted force, work in a controlled environment and practice as technical nurses. We will do this for three years—put three classes through—continually evaluating it to see if it's meeting our needs. Primarily, we want to know if it is a cost-effective way of providing patient care or if it would be more advantageous to continue with the two levels. It also gives the participants an opportunity to advance professionally. They will receive an associate degree in nursing at the end of the program and will be eligible to sit the licensing examination for registered nurses.

Digest: Would there be opportunities for them to go on and get a bachelor's degree?

General Goodwin: Yes, which we would certainly encourage them to do.

Digest: Would that provide another source for obtaining skilled professionals?

General Goodwin: Yes. Part of the nursing shortage is the supply and demand problem. The "demand" is the precipitating problem, but it is going to move into a supply problem as well. Because of dwindling resources, we're going to have to educate our own nurses, and this is one way of starting to do that.

Digest: Being able to obtain degrees is one of the ways medical technicians are having new doors opened. Are there other opportunities that have improved over the years?

General Goodwin: Different training programs have been opened to the technicians as the requirements for more skilled care givers have increased. We are continually reviewing their training programs. Emergency Medical Training is also becoming a requirement that increases their skill level and provides them opportunities to market themselves when they separate. We're extremely fortunate in the technicians that we have—truly the best.

Digest: Can you tell us how the role of the Nurse Corps has changed in the past 10 or 20 years?

General Goodwin: It has definitely expanded. We have matured as the Medical Service has matured over the past couple of decades in the national and military health care systems. The essence and role of nursing has remained the same: caring for patients who are in need of that care and assisting them in meeting some emotional challenges they have during that illness. Our practice environment is changing significantly, and the

educational requirements are changing as a result of that. Nursing has moved from a two and a three-year hospital educational program to the university setting. More people are being prepared at the graduate and doctorate levels than ever before. The standard for entry into practice, at least to the professional nurse, is the baccalaureate level.

We must be able to adapt to changing trends in medicine. Although various regulating agencies and professional organizations have imposed additional standards and requirements on health care professionals and institutions, they also provide opportunities. For instance, through its accrediting process, the Joint Commission on Accreditation of Hospital Organizations has developed specific standards that address the role and responsibilities of nursing at all levels within a facility. Likewise, the spiraling costs of national health care have brought about significant changes in health care delivery, such as the move toward ambulatory care that we have been experiencing. We are responding to these challenges.

In a recent review of our nurses' roles, we found significant numbers in the less traditional positions and recognize their value in the overall management of our medical treatment facilities. The phrase "Health Care Team" is gaining increased meaning in today's environment. Our Air Force nurses are performing superbly in the expanded roles of nurse midwives, nurse practitioners, certified registered nurse anesthetists and in roles handling infection control, quality assurance, health promotion, discharge planning and facility planning. They are also performing a variety of other roles unheard of in the recent past. As health care needs change we will continue to establish positions to meet those needs.

In the Air Force, we recognize that nurses are as qualified to be managers as other members of the health

care team. We have two nurses currently serving as commanders of clinics. We have had two nurses as commanders of aeromedical evacuation squadrons.

Digest: Can you tell us something about the performance of our nurses in the Middle East?

General Goodwin: Readiness is a part of our everyday mission. We are constantly exercising our readiness measures in all of the commands. I'm very confident, as I know others are, that when our people deployed, they were prepared to do what was expected of them. We are all extremely proud of what they are doing—they're doing a bang-up job for us. I'm sure that as they go through the day-to-day operations, they experience great sacrifices and challenges, but they are resourceful, highly motivated people who are there because they are committed to their mission. The bottom line is that they are learning a lot. They will perhaps have opportunities to do things differently in the future as a result of their experiences. Although I have to say that there are problems and challenges in the Middle East, our people are accepting and overcoming them.

The morale is good, for the most part, and the sense of unity is great. For example, the air transportable hospitals (ATHs) deploy with their wings. It's their family—they do things together and they realize a sense of security and support. The ATHs are teams that have practiced together. They've worked together and now they are over there together. They don't have to get to know one another when they arrive as well as adjust to everything else. They go in as a team and function as a team. The aeromedical evacuation units are doing the same terrific job that the hospital staffs are doing and in similar situations, surroundings and environment. It is rewarding and satisfying to know that we have such people over there.

Digest: Is the Air Force Nurse Corps prepared for war?

General Goodwin: Yes. With the readiness training and the exercises we conduct on a routine basis, our people are prepared. You certainly need to have the proper equipment and the training to go over, but you also need the moral fiber that I know we have. We feel very confident.

Digest: How has deployment affected the Nurse Corps' ability to meet peacetime responsibilities in the United States?

General Goodwin: When we talk about the Nurse Corps in this instance, we are really talking about the entire Air Force Medical Service as a whole. The facilities from which the deployment has occurred certainly are feeling the brunt of those deployments. Individuals backfilling positions at the sites are flexible and resourceful and know that we have a goal that we are all working toward. The Air Force Reserve and Air National Guard have been extremely supportive in backfilling, and I am continually impressed with accounts of their willingness to step in and do whatever has to be done. It is certainly not without sacrifice when you rotate a staff on short notice and try to rebuild that team. It takes a lot of work on everyone's part, but they're doing it and they're doing it very well.

Digest: What do you consider are the Nurse Corps' most significant achievements over the past year?

General Goodwin: As I reflect back on the year, I think it's been a successful year because of the many dedicated professionals pursuing our goals. Specifically, the major achievements have been the grade review that was completed, the increase in promotion opportunities that we anticipate in 1991, and the clinical career ladder that has just been finalized and will be sent to the field soon.

Also important has been the establishment of and progress made in our nurse anesthesia educational program. The students in the program are doing very well. We are now going through the accreditation process and getting positive results. This program has been in development for the past few years and is coming to fruition now.

Another tremendous accomplishment has been getting our foot in the door with the test of an automated nursing system package. I would be remiss if I did not acknowledge the success of our recruiters in bringing on board the necessary numbers of quality people to meet our goal in spite of the national shortage. Looking back, I think that we made advances for nursing, nursing personnel, and ultimately the Medical Service.

Digest: What do you see ahead? What are your goals and resolutions for the new year?

General Goodwin: As I said earlier, recruiting and retention are issues that we are going to be addressing—forever probably. The initiatives and incentives that we have for improving retention are some that we have to continue working: improving the clinical environment by advancing senior, experienced personnel within the clinical arena; addressing the special pay and retention bonuses; and continuing to provide educational opportunities for our members. Of course, readiness is always number one on our agenda.

Digest: Is there a message you would like to leave with the Medical Service?

General Goodwin: I would like to thank each member of the Air Force Medical Service for their professionalism and dedication to our mission. You all do superb work for us, and we're very proud of each of you. We at HQ USAF/SG are committed to doing what we can to facilitate the work of members of the AFMS in meeting our mission and providing quality patient care. That's the bottom line.

Digest: Thank you, General Goodwin.

Here's to Your Health!

Health Fair Planning at Scott AFB

Lt. Col. Barbara M. Hair, NC

Health fairs continue to increase in number and popularity because of the unique combination of service, education and enjoyment they offer to the public. Over the past four years, we at the USAF Medical Center Scott, Scott AFB, Ill., have learned many lessons regarding the planning, organizing and coordinating of health fairs. We pass along some of our experiences to help others enjoy the rewards of a successfully staged health fair.

What is a Health Fair?

At a health fair, various agencies come together with the public to provide information on how to use available health services and maintain optimal health. When local health service organizations—such as the American Red Cross and American Lung Association—participate, they add a new dimension of appeal to the Air Force health fair.

Generally, health screening services are also performed at health fairs. At Scott, we often provide hearing tests and screening for glaucoma, oral cancer and high cholesterol. Such services require teamwork and dedication from many disciplines within the medical center, and our attendees greatly appreciate the results.

Where are We Going?

A successful health fair begins with determining the health services and education needs of the local population. At Scott, the Health Promotion Coordinator's periodic "needs assessment" provides insight on the health-related aspects of our patients.

After identifying our needs, we develop a theme or purpose for the health fair to give it focus. For example, if we are targeting older adults, we may invite representatives from the Arthritis Foundation and the American Cancer Society rather than groups who speak to

Health fairs at Scott AFB, Ill., appeal to people of all ages in the base community.

school children about drug abuse. To reach a younger population, we would offer scoliosis screening instead of glaucoma testing. If we focus on fitness, nutritional information on a balanced diet and cholesterol control is more appropriate than presentations on infant feeding. These considerations are not limitations—rather, they give our health fairs a unified sense of direction.

Armed with information about our patient population and a theme, we start putting things together. It's important to get an early start, and at Scott, we begin planning a fair at least three months in advance. It could require less time, but it's always wise to plan time for unexpected problems.

Name the Time and Place

To improve the odds of good attendance, we plan our timing carefully. If possible, we avoid rainy seasons and cold weather, and summer months when people often vacation. Non-holiday weekends in the spring or fall have worked best for us.

Once we decide on a time for our health fair, we figure out the best place to have it. We want a central location with easy access where people are likely to congregate, such as the base exchange. We use a variety of locations, depending on the group we are trying to reach. By having our fairs in busy locations, we attract visitors who don't know about our activities in advance.

Generate Interest Creatively

At times, people sponsoring health fairs are disappointed by the turnout because they feel their services and information warrant a larger patient response. We've found that combining a health fair with another local event is one way to increase the likelihood of a good turnout.

Some bases combine their health fairs with a major event, like an air show. Others try something a little more modest, like National Fitness Month. At Scott, our Health Promotion Committee worked with the Illinois Trekkers to combine a health fair with a volksmarch, and we had a fantastic turnout! Our "Win with Wellness" volksmarch was the second largest volksmarch in the area.

National organizations can also contribute to the success of a health fair. For example, the Lions Club provided their bus for hearing tests; the Arthritis Foundation set up an interactive display of bones and joints; and the American Lung Association conducted pulmonary function tests. Such groups appreciate the opportunity to explain their programs and services.

A successful health fair also depends on the creativity and support from the people on base. The Scott AFB health promotion committee—comprised of personnel from various base organizations—is the backbone of every health fair. Nurses, technicians and staff mem-

Health fair participant takes a pulmonary function test given by an American Lung Association representative.

The Arthritis Foundation provides a creative display showing an arthritic hipbone (right) compared with a normal hipbone (left).

Air Force hospital personnel offer cholesterol screening.

bers within the medical facility also pitch in. We've asked the base library to set up displays and conduct drawings for prizes, and MWR to perform aerobic demonstrations. In addition, the security police have used speakers and videos to discourage drug abuse among our youth. University students working on various projects, such as body composition analyses, also have participated.

Volunteer organizations on base also play an important part in our health fairs. The Boy Scouts have handed out juices and fruits provided by the commissary, and the Red Cross has brought out their CPR "Annie."

In addition to a variety of participants, creative and eye-appealing displays generate interest in a health fair. Nothing is quite as boring as walking around a large room with table after table filled with pamphlets. At Scott, we try to make our booths interesting, using videos and displays to illustrate a host of topics. To demonstrate CPR, we use mannequins. We devote some booths to health screening, and at times offer drawings for prizes.

Many of our people have been very imaginative. Our physical therapist set up a skeleton, and one of our dieticians brought in a model of five pounds of fat—that got a lot of attention! Many things can be done with just a little imagination. For example, people really like promotional goodies. Buttons, handouts and T-shirt transfers from the American Cancer Society are especially popular. We try to make each display a place that people want to visit, and we'll try almost anything to grab a visitor's attention!

Get the Word Out

No matter how much work goes into a health fair, we've failed if no one comes. Early publicity is the key to good attendance. At Scott, we use the base bulletin and any unit bulletins we can find. The weekly "Health Line" column in the base newspaper has been an effective way to let people know our plans. Scott's "Command Post" has also been great about publicizing our health promotion events. We put signs up in strategic

places like the commissary and the BX, and we use flyers and handouts. When possible, we also use the marquees at base entrances.

We also target our publicity to specific areas and groups as appropriate. If we plan our health fair for retirees, we use the retiree newsletter. If we design our activities to reach children, we focus on the Child Development Center and local schools. If we emphasize physical fitness, we go to the fitness center and gym to get the word out. We start at least four to six weeks ahead and use every opportunity to announce the coming events.

Plan the Logistics

We address our logistical needs early in the planning. For example, we arrange for tables and chairs, transportation, set up, and tear down of our booths and furniture. We also arrange for signs to be made in a consistent style for each booth. Whenever possible, base audiovisual people come to our rescue. Covering booth tables with sheets adds a more professional appearance.

Setting up for electrical equipment is very important. We have to plan for sufficient outlets and extension cords. If we use video tapes, we make sure that we have the proper size VCR in place. Lastly, we prepare floor plans to show where each booth will be located and hand them out to the staff ahead of time, making the setup much easier on the day of the fair.

Although we've had last-minute disasters over the years, we learn something new with each health fair—and we try not to make the same mistake twice.

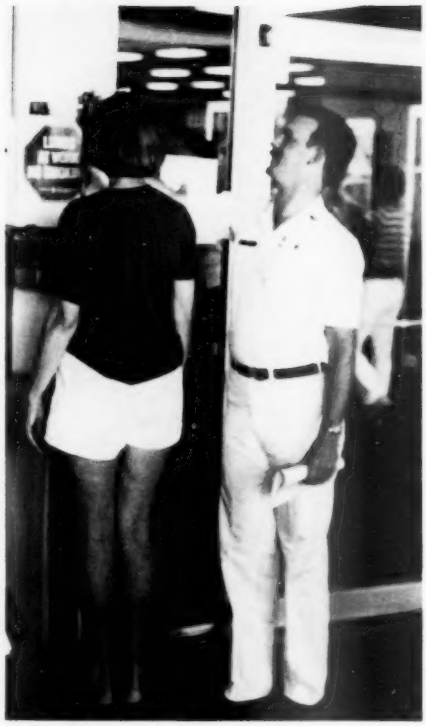
Concluding Thoughts

In conclusion, there are certain principles we follow to ensure our health fairs run smoothly:

Avoid money. We never allow any participants to accept money for services, and would advise against it. The Air Force has very specific regulations on accepting money, so anyone tempted to include charges should check with the legal office first!

Avoid controversy. We do not permit any display or information that could cause debate or be offensive to any group. Our motto is: "When in doubt leave it out."

Think safety. For example, extension cords should be covered to avoid accidents. Fire lanes must be kept open, and aisles clear of tables. We maintain open access to congested areas such as the BX and commissary.



Sgt. Donald Grant of the USAF Medical Center Scott mans the scales.

Keep smiling. Sometimes things don't go exactly as planned. But if we're flexible and creative in handling the unexpected, we can enjoy the rewards of our planning and hard work.

Say thanks. Few words sound sweeter than "thank you," and we try to say them often to those who help. We make it a practice to follow up with something in writing, mentioning people in bulletins and presenting certificates and letters of appreciation. We want the great people at Scott AFB to know how much we appreciate them—their hard work is the secret to the success of our health fairs.

Lt. Col. Barbara M. Hair is a primary care nurse practitioner in the internal medicine clinic and the health promotion coordinator, USAF Medical Center Scott, Scott AFB, Ill.

"We never repent of having eaten too little."
Thomas Jefferson

Tick Identification: Preventing Disease

Capt. T. L. Carpenter, BSC

Tick season arrives with the approaching months of warm weather, and these relatives of the mites must be taken seriously as they begin their campaign. Ticks are second only to mosquitoes in the number of diseases they transmit to man (1). Lyme disease, borne by ticks, is now the most important vectorborne disease in the United States (2). Medical concern over tick bites increases continually as evidence points to the tick as vector for emerging diseases, such as human ehrlichiosis (3).

All members of the USAF population, including active duty personnel, retirees and dependents, risk infection by ticks through some degree of exposure to tick habitat (4). Some specialties, such as security policemen, combat controllers and tactical air control teams, may be especially susceptible because they spend more time in the field than others (5). However, caution should be exercised even at home in the backyard and during outside recreational activities. The most common type of tick could be carrying a disease.

The Importance of Tick Identification

Since different species of ticks are each responsible for transmission of particular diseases, identifying the type of tick narrows down the field of possible infections. Tick identification furnishes health care providers with information they can use in diagnosis, in prioritization of subsequent health care actions, and in formulation of recommendations for prevention of tickborne diseases.

Diagnosis of tickborne disease relies upon three things: clinical suspicion, recognition of characteristic signs and symptoms, and appropriate use of serologic tests (6). Clinical suspicion is based primarily on the patient's exposure to tick or tick habitat. Tick identification plays a key role here by defining the element of risk involved with that exposure. Whenever possible, clinical diagnosis takes priority over serologic findings because of the variability in results of serologic tests (7).

Knowledge by specie identification of the risk involved with exposure to tickborne disease also assists the health care provider in prioritizing follow-up care. If the health care provider suspects the risk to be significant, the provider briefs the patient about the symptoms of the tickborne illness. The patient is cautioned to be observant of symptoms such as flu-like sickness or a rash on the extremities or the site of the tick attachment. Because early serologic evidence of infection is rarely reliable, the health care provider may indicate presumptive antibiotic therapy based upon the patient's history, the season of the year and vector information.

If illness develops, the attending health care provider uses information on tick attachment, species, vector potential and time of exposure to aid in the decision-making. The best way to make sure this information stays available is to document the tick information on a Consultation Sheet (SF 513) or similar form and place it in the patient's medical record.

The Practice of Tick Identification

Professional entomologists in the medical entomology section of the epidemiology division, USAF School of Aerospace Medicine, Brooks AFB, Texas, provide tick identification as one of our many duties. The identification program responds to specimens voluntarily submitted by environmental health personnel and medical treatment facility workers. Physician, nurse, technician and medical staff awareness of the identification program is critical because most ticks are removed and collected by primary care practitioners during duty hours and by technicians in the emergency room after normal duty hours.

We entomologists identify the ticks to species and respond by telephone to the submitting agency, usually the same day we receive the specimen. We also complete and return any included consultation sheet, or we send a letter with specimen identification and other pertinent data back to the submitting agency. We analyze and compile information about the case for our records and maintain the specimens in a reference collection.

Currently, we do not screen ticks for pathogens. Screening for pathogens does not give a definitive answer about disease transmission because persons bitten by infected ticks might not contract the disease (8). For example, Lyme disease spirochete levels in ticks may vary with age and stage of the tick, and they may not be at an infectious level at the time the patient is bitten (9). Also, the tick may not have transmitted any pathogens during the time it was attached. Infection with the Lyme disease spirochetes increases with duration of tick attachment: in one study, infection was rare in tick attachments lasting 24 hours, but approached 100 per-

cent at 72 hours of attachment (10).

Pathogen screening may be available on a limited basis through state health departments or the Centers for Disease Control. We recommend contacting the agency in advance to be sure they have the capability and are willing to perform the screening.

At Brooks, we also provide a consultant service to assist environmental health personnel in identifying ticks and tick habitat in operational areas. Section medical entomologists provide guidance for initiating and accomplishing tick surveillance, and they identify the ticks that are collected. Surveillance identifies areas where people may be at greatest risk, enabling operational commanders to plan accordingly and pest management technicians to take appropriate measures if control is deemed necessary.

The Result of Tick Identification

During 1988, we identified 185 ticks of seven species from 19 bases, and in 1989, we identified 139 ticks of eight species from 28 bases. The data we collect at the identification service significantly impacts knowledge concerning the threat of ticks to humans. Continued use of this service will add to its effectiveness in helping minimize the risks of tickborne disease infection.

If you have questions about the tick identification service, contact one of the medical entomologists in the epidemiology division, USAF School of Aerospace Medicine, Brooks AFB, Texas, DSN 240-3471.

At the time this article was written, Capt. T. L. Carpenter was a medical entomologist assigned to the medical entomology section, epidemiology division, USAF School of Aerospace Medicine, Brooks AFB, Texas. He has recently been reassigned to HQ USAFE, Ramstein AB, Germany.

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A Salute to America. TSgt. Danilo DeGuzman Jr. presents a framed lithograph of the American flag to the Chairman, Joint Chiefs of Staff, General Colin L. Powell. The gift was an expression of gratitude and admiration for the general's leadership during Operation Desert Storm. Sergeant DeGuzman, an administrative manager in the health affairs and plans division of the Office of the Air Force Surgeon General, wrote a patriotic letter accompanying the lithograph that caught the general's attention. In the letter, Sergeant DeGuzman recognized that it is because of their "love of liberty that men and women are willing to lay down their lives for the cause of truth and freedom." Sergeant DeGuzman was invited, along with his wife and two children, to meet General Powell at the Pentagon on Feb. 22, 1991.

The index and/or table of contents has been removed and photographed separately within this volume year.

For roll film users, this information for the current volume year is at the beginning of the microfilm. For a prior year volume, this information is at the end of the microfilm.

For microfiche users, the index and/or contents is contained on a separate fiche.

Desert Shield patient receives treatment in an air transportable hospital.

Saudi personnel offered a friendly welcome and assistance to Air Force medics.

Air Force physician provides patient care during Operation Desert Shield.